

NASA's HUNCH

Clear Creek High School & NASA's HUNCH

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Above: Master of Ceremonies Alan Sisson at a Section dinner meeting at NASA / JSC.

The acronym is High school students United with NASA to Create Hardware (**HUNCH**). Our local Clear Creek High School in the Houston Clear Lake area was the first to participate. That was back in 2003.

Alan Sisson was a great help for our Section's AIAA work in recent months and years. He is volunteering once a week at this high school and this NASA project. Alan is a graduate systems engineering student at the University of Houston at Clear Lake (UHCL). Alan earned his bachelor of science in aero-

space engineering degree from the University of Texas at Austin. He put me in touch with Robin Merritt, the engineering teacher at Clear Creek High School.

It is surprising to see engineering taught in high schools, and it is a surprise to know that this school has about fifty students enrolled in engineering with Mr. Merritt. He started work at this school in 2004, so he missed the first HUNCH activities.

The most recent HUNCH project at Clear Creek High School is for the International

Space Station (ISS): a Cupola Astronaut Restraining System (CARS). It holds the astronaut in place while operating the ISS robotic arm. The astronaut stands on it. It can help with spacecraft docking with ISS, but CARS can also help with any ISS robotic arm task. CARS is adjustable and can be removed from the cupola in less than seven seconds. CARS was delivered to NASA in 2012. NASA might not use the entire design. The Clear Creek High School CARS team was not working with any other high schools on that project. Students do

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Above: Clear Creek High School engineering students wearing the uniform (shirt) of those enrolled in the engineering curriculum. These students participate in High school students United with NASA to Create Hardware (HUNCH) program. Their teacher Mr. Robin Merritt is shown at right. Image credit: Supplied to Horizons by Mr. Robin Merritt.

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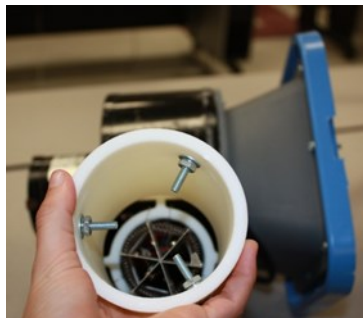
quite a lot (maybe all) of the design work on their own. This team has a NASA-sponsored machine shop in the school, the only such machine shop in the area.

Their current project is a space station shower and washer system. The shower has four components:

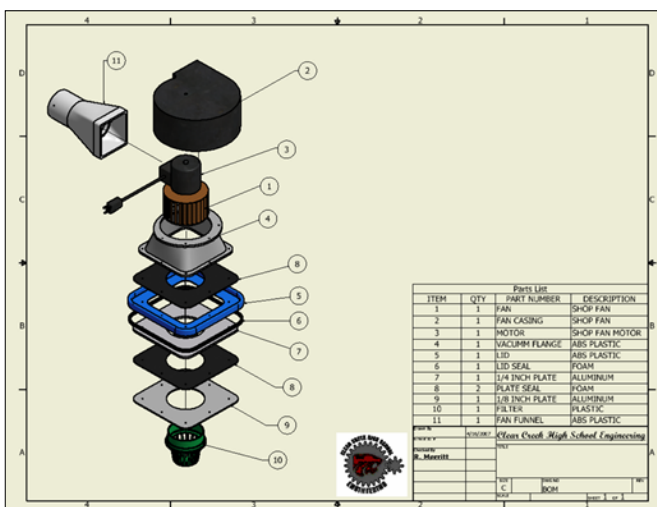
- Capsule: collapsible, lightweight, with a water-proof liner
- Vacuum system
 - Creates a circular flow of air throughout the shower system
 - Provides air flow to move water through the shower
 - Provides air/water movement for filter function
 - Facilitates clothes drying in dryer component
- Filter system
 - Allows the passage of air but not water
 - Enables air to be re-circulated into the capsule
 - Retains water within the bucket
- Heating
 - Air is heated in fan unit
 - Provides some home-like amenity to the shower
 - Facilitates drying of clothes in washer component

The washer has three components:

- Integrates into shower system
- Uses vacuum from shower to remove water
- Clothes are washed by depositing clothes and washing detergent in bag and agitating with hands



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Above: The space station shower and washer system designed by the Clear Creek High School HUNCH. Image credits: Mr. Robin Merritt, Engineering Instructor, Clear Creek High School.